ORDER NO. AD9103042C8

Service Manual

Tuner

STEREO SYNTHESIZER TUNER

ST-X302L

Color

(K)	..... Black Type

Areas

Country Code	Area	Color
(E)	Continental Europe	(K)
(EB)	Great Britain	
(GC)	Asia, Latin America, Middle Near East and Africa	
(GN)	Oceania	

SPECIFICATIONS

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz (0.05 MHz steps)
Sensitivity	1.5 µV (IHF, usable)
S/N 30 dB	1.3 µV (75Ω)
S/N 26 dB	1.2 µV (75Ω)
S/N 20 dB	0.9 µV (75Ω)
IHF 46 dB stereo quieting sensitivity	28 µV/75Ω
Total harmonic distortion	
MONO	0.15%
STEREO	0.3%
S/N	
MONO	70 dB (78 dB, IHF)
STEREO	65 dB (70 dB, IHF)
Frequency response	20 Hz~15 kHz, +0.5 dB~−1.5 dB
Alternate channel selectivity	
±400 kHz	55 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	45 dB
IF rejection at 98 MHz	90 dB
Spurious response rejection at 98 MHz	75 dB
AM suppression	55 dB
Stereo separation	
1 kHz	40 dB
10 kHz	30 dB
Carrier leak	
19 kHz	−30 dB (−35 dB, IHF)
38 kHz	−45 dB (−50 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.5 dB
Limiting point	1.2 µV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	
MW	
For Continental Europe, Great Britain and Oceania	522 kHz~1611 kHz (9 kHz steps) 530 kHz~1620 kHz (10 kHz steps)
For others	531 kHz~1602 kHz (9 kHz steps) 530 kHz~1600 kHz (10 kHz steps)
LW	
For Continental Europe, Great Britain and Oceania	144 kHz~288 kHz (9 kHz steps) 146 kHz~290 kHz (9 kHz steps)
For others	153 kHz~279 kHz (9 kHz steps) 155 kHz~281 kHz (9 kHz steps)
Sensitivity (S/N 20 dB)	
MW	20µV, 300 µV/m
LW	50 µV
Selectivity (±9 kHz)	
MW (at 999 kHz)	50 dB
LW (at 254 kHz)	50 dB
Image rejection	
MW (at 999 kHz)	40 dB
LW (at 254 kHz)	40 dB
IF rejection	
MW (at 999 kHz)	60 dB
LW (at 254 kHz)	60 dB

■ TIMER SECTION

Clock	Quartz-lock type 24-hour indication
Functions	24-hour programmable; weekly (1 setting) once only (1 setting) sleep (at 1~120 min., 1 min. intervals)
Programmable content	Program source (FM, MW, LW, CD, TAPE) Timer rec/timer play/power ON/OFF setting Designation of preset station
Setting intervals	1 minute~23-hours, 59 minutes (at 1 min. intervals)
Priority order	sleep, once, weekly

■ GENERAL

Output voltage	0.3 V (0.6 V IHF)
Power consumption	9 W (Standby 6 W)
Power supply	
For Continental Europe	AC 50 Hz/60 Hz, 220 V
For Great Britain and Oceania	AC 50 Hz/60 Hz, 240 V
For others	AC 50 Hz/60 Hz, 110 V/127 V/220 V/240 V
Dimensions (W×H×D)	360×94.5×304 mm (14³⁄₁₆″×2¹⁷⁄₃₂″×12″)
Weight	2.3 kg (5 lb.)

Note: Specifications are subject to change without notice. Weight and dimensions are approximate.

Technics

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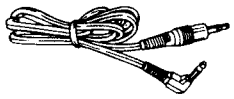
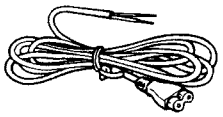
■ ACCESSORIES

- Stereo connection cable <SJPK2203-2>

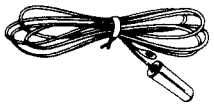
- L-type cable <SJP2257T>



- AC power supply cord
  For (E) area only <SFDAC05E03>
  For (EB) area only <SJA193>
  For (GC) area only <RJA0004>
  For (GN) area only <SJA173>

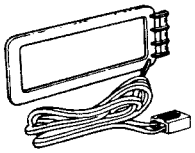


- FM indoor antenna
  For (E, EB) area <SSA270M>
  For (GC, GN) area <SSA272M>

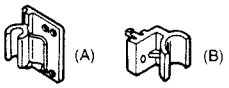


- Attachment plug
  For (EB) area only <SJP9009>

- AM loop antenna <SPB1162T>

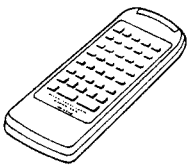


- AM antenna holders <SMA233-1M> <SMA231M>

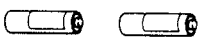


- Screws <XTB3+10AFZ>

- Remote-control transmitter <RAK-SC304W>



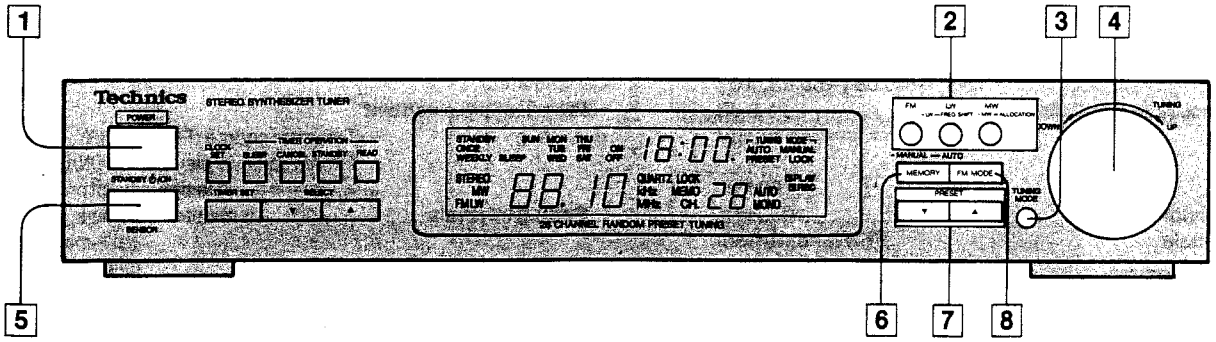
- Batteries
  (two) (UM-4, "AAA", R03)



<UM-4N6P/2S>

■ LOCATION OF CONTROLS

The indication AM used here includes both MW and LW.



[1] Power "STANDBY ⏻/ON" switch (POWER/STANDBY ⏻/ON)

[2] Band selectors

[3] Tuning-mode selector (TUNING MODE)

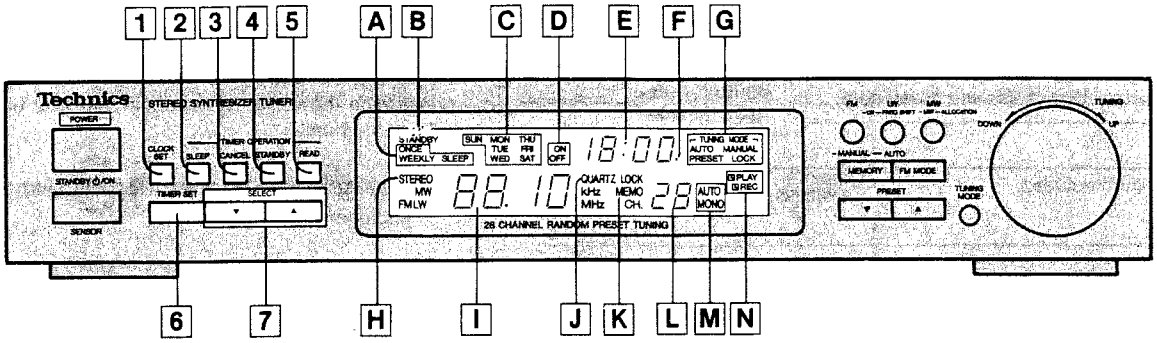
[4] Tuning control (TUNING)

[5] Remote-control signal receptor (SENSOR)

[6] Memory button (MEMORY)

[7] Preset-channel buttons (PRESET)

[8] FM mode selector (FM MODE)



Timer section

1 Clock set button (CLOCK SET)
This button can be used, when setting the unit to the present day and time, to select the item (day, hour and minute) to be set next.

2 Sleep button (SLEEP)
This button can be used to set the time at which the power will be switched OFF.

3 Cancel button (CANCEL)
This button can be used to erase the timer setting or to cancel a setting that is being made, if, for example, you decide to do something else.

4 Stand-by button (STANDBY)
This button can be used to temporarily cancel the timer setting.

5 Read button (READ)
This button can be used to check the programmed setting.

6 Timer set button (TIMER SET)
This button can be used, when making the timer setting, to select the type of timer operation, the day, the time, etc.

7 Select buttons (SELECT)
These buttons can be used to set the unit to the present day and time, and for setting the day, time, etc. for timer operation.

Display section

A Timer-mode indicator (ONCE/WEEKLY/SLEEP)
This indicator shows the type of timer operation that has been selected.

B Stand-by indicator (STANDBY)
This indicator shows that the timer has been set to operate at the programmed time.

C Day display
This display shows the present day, and (if the timer has been set) the day it has been set for.

D Timer ON/OFF indicator (ON/OFF)
This indicator shows whether the times for timer switch-ON and switch-OFF have been set.

E Time display
This display shows the present time, and (if the timer has been set) the time it has been set for.

F Colon indicator
This indicator shows, by flashing continuously, that the clock is operating.

G Tuning-mode indicator (AUTO/MANUAL/PRESET/LOCK)
The words "AUTO", "MANUAL", "PRESET" and "LOCK" illuminate in succession each time the tuning-mode selector is pressed.

H FM stereo indicator (STEREO)
This indicator automatically illuminates when an FM stereo broadcast is being received.
It will not illuminate if the FM mode selector is set to the monaural mode.

I Digital frequency display
For timer operation, "CD" and "TAPE" are displayed.

J Quartz-lock indicator (QUARTZ LOCK)
This indicator illuminates when the unit is tuned precisely to a broadcast station.

K Memory indicator (MEMO)
This indicator illuminates when the memory button is pressed.

L Channel display
This display shows the channel number selected by one of the preset-channel buttons.

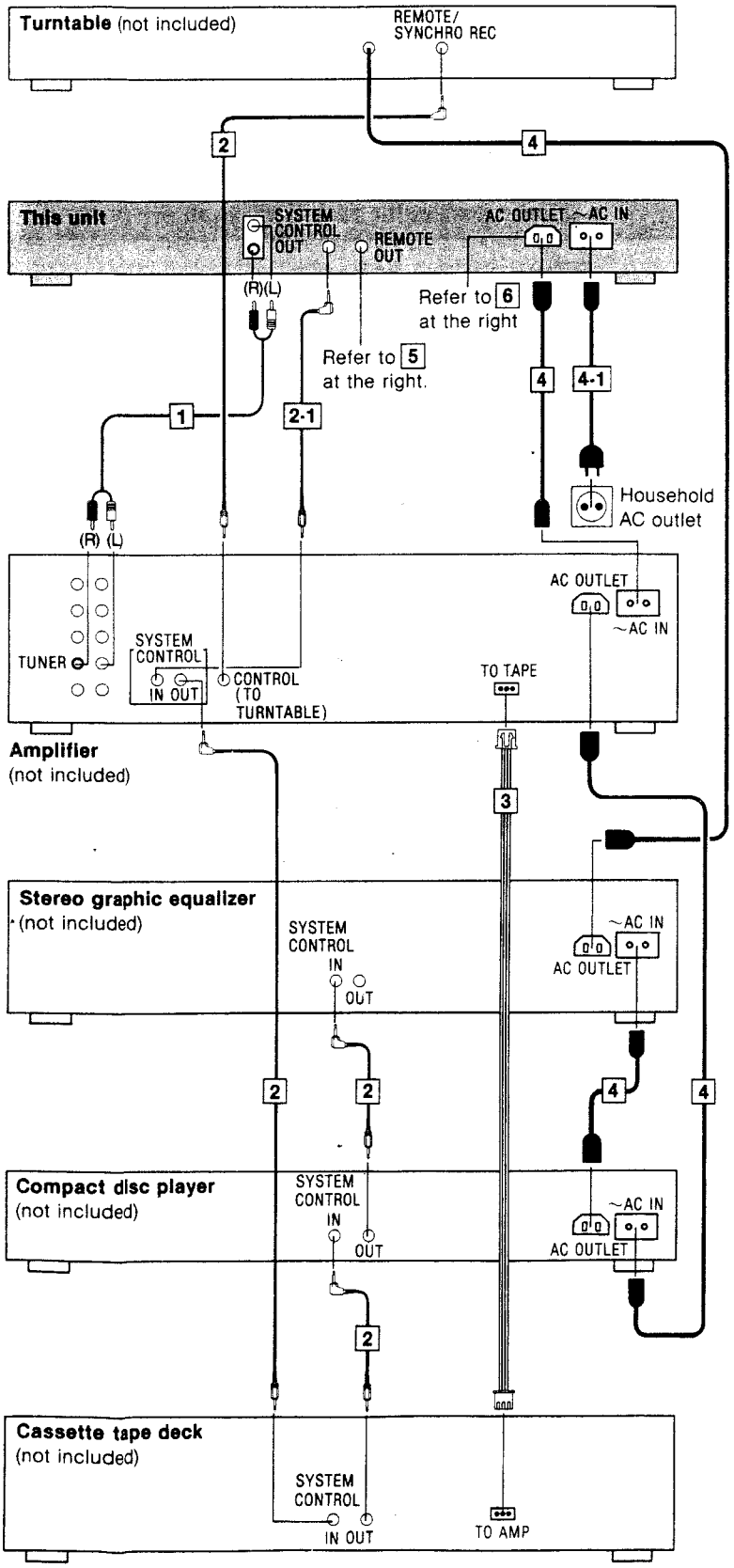
M FM mode indicator (AUTO/MONO)
When FM broadcasts are being received, usually the "AUTO" indication is illuminated.
When the FM mode selector is used to select monaural reception, the word "MONO" illuminates.

N Timer play/rec indicator (PLAY/REC)

■ CONNECTIONS

Make connections in the numbered sequence by using the included cables and power cord.

Stereo connection cable
White (L)
Red (R)



Make connections as described below for remote-control operation and timer operation. For information concerning the stereo connection cables of each unit, refer to that unit.

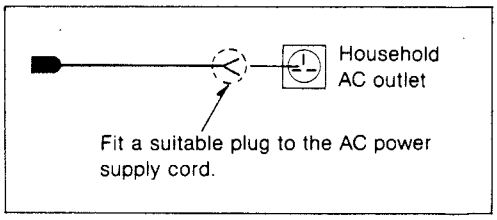
1 Connect the stereo connection cable
(included).

2 Connect the L-type cables.
2-1 Connect the L-type cable (included).
If the compact disc player is not used in combination with these components, connect the L-type cable included with the stereo graphic equalizer to the "SYSTEM CONTROL OUT" terminal of the cassette deck.

3 Connect the 3-core flat cable
(included with the cassette deck).

4 Connect the AC power supply cords.
4-1 Connect the AC power supply cord
(included).

① Connect this cord only after all other cables have been connected.
② For United Kingdom



Notes:
- Configuration of the AC outlets and AC power supply cords differ according to area.
- If the compact disc player is not used in combination with these components, connect the AC power supply cord of the stereo graphic equalizer to the AC outlet of the amplifier.

5 "REMOTE OUT" terminal
This terminal is used to connect to the "REMOTE IN" terminal of the Technics multi-compact disc player (not included).

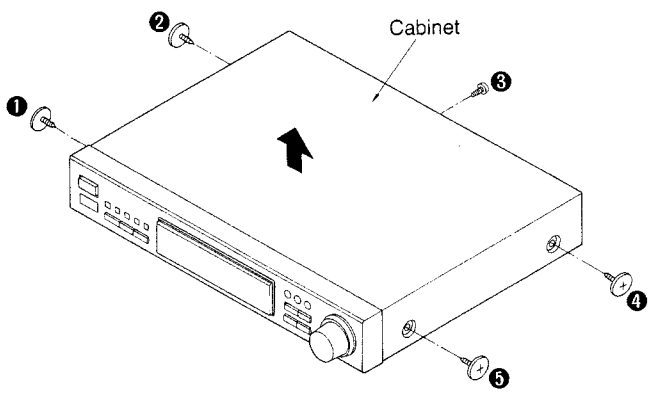
6 "AC OUTLET"
"SWITCHED" outlet
Power is controlled by the power switch.
Audio equipment rated up to 500 W can be connected here.

Note:
If other audio equipments are to be connected to this outlet, make sure that the total power consumption does not exceed the rating of the outlet.

■ DISASSEMBLY INSTRUCTIONS

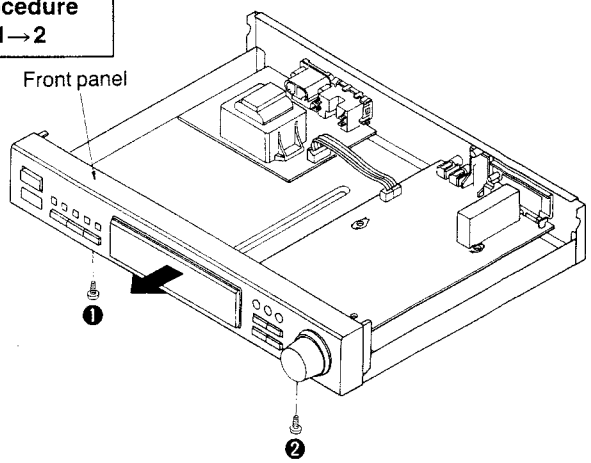
"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	Removal of the cabinet
Procedure 1	



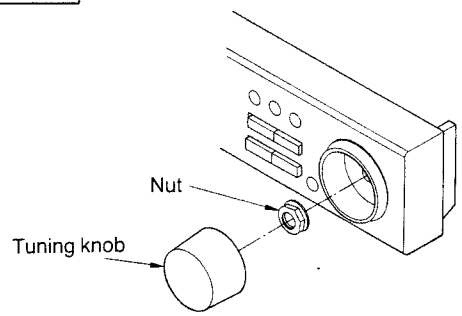
•Remove the 5 screws (❶~❺).

Ref. No. 2	Removal of the front panel
Procedure 1→2	

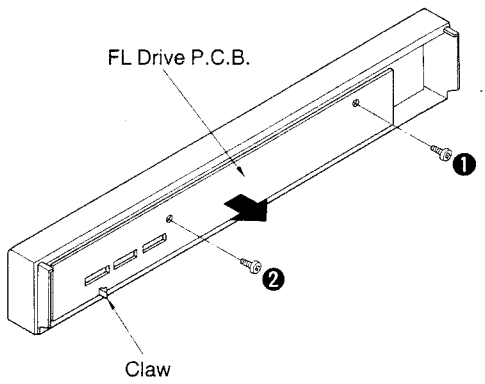


1. Remove the 2 screws (❶, ❷).
2. Remove the front panel in the direction of arrow.

Ref. No. 3	Removal of the FL drive P.C.B.
Procedure 1→2→3	

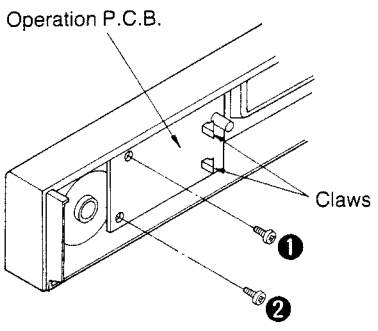


1. Pull out the tuning knob.
2. Remove the nut.



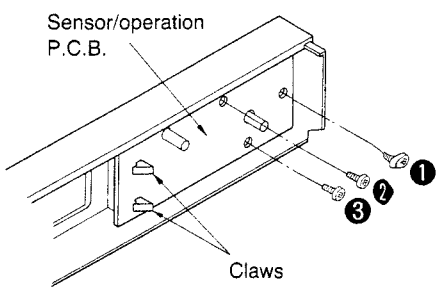
3. Remove the 2 screws (❶, ❷).
4. Release the 1 claw.

Ref. No. 4	Removal of the operation P.C.B.
Procedure 1→2→3→4	

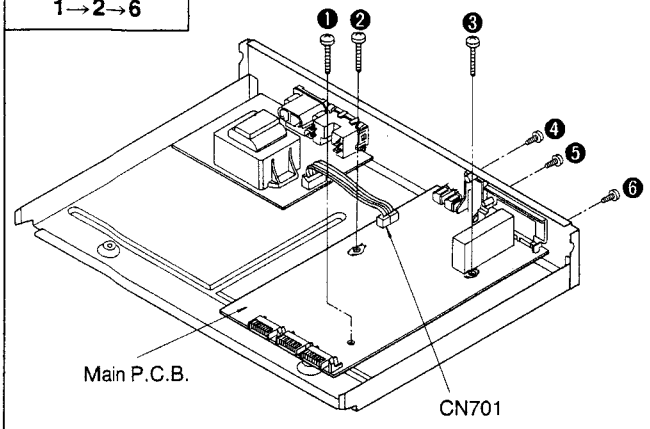
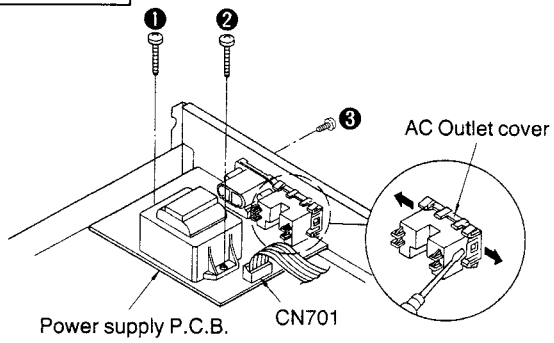


1. Remove the 2 screws (❶, ❷).
2. Release the 2 claws.

Ref. No. 5	Removal of the sensor/operation P.C.B.
Procedure 1→2→3→5	

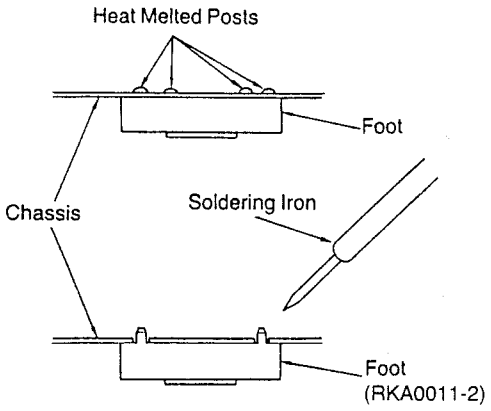


1. Remove the 3 screws (❶~❸).
2. Release the 2 claws.

Ref. No. 6	Removal of the main P.C.B.	Ref. No. 7	Removal of the power supply P.C.B.
Procedure 1→2→6		Procedure 1→7	
1. Remove the flat cable (CN701). 2. Remove the 6 screws (❶~❻).		1. Remove the flat cable (CN701). 2. Remove the 3 screws (❶~❸). 3. Remove the 2 claws of AC outlet cover.	

•Replacement of the Foot.

1. Remove the 4 heat melted posts on the chassis with a pair of nippers or similar tool.
2. To replace the foot (RKA0011-2) on the chassis, melt the 4 posts with a soldering iron.



■ MEASUREMENTS AND ADJUSTMENTS

FM ADJUSTMENT

Control positions and equipment used

- FM signal generator (FM-SG)
- Distortion analyser
- DC electronic voltmeter (EVM)
- Frequency counter
- Choke coil (100 µH)
- Resistor (100 kΩ)

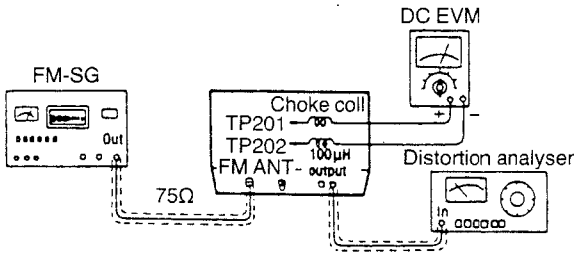
Note: For Z251 (AM-ANT/OSC) and Z202 (AM-IFT), they are supplied as adjusted parts. So, do not turn the cores of the parts. It is not necessary to adjust the AM circuit.

FM MONO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to **"FM"** mode.
3. Set the radio frequency display and signal generator to **100.10 MHz**.
4. Adjust the core of **T201** so that the voltage measured in signal mode is **0 mV (0±20 mV)** in 300 mV range.
5. Adjust **T202** so that the distortion factor of L-CH and R-CH is minimized.
6. Repeat steps 4 and 5.

Note: The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency ..... 1 kHz
Output level ..... 66 dB



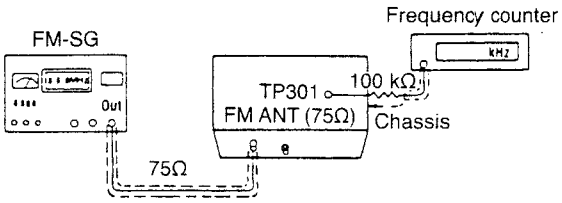
MPX VCO ADJUSTMENT

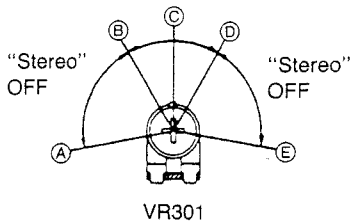
1. Test equipment connection is shown in figure.
2. Set the unit to **"on/auto"** position.
3. Set the radio frequency display and signal generator to **100.10 MHz**.
4. Adjust **VR301** for **19 kHz±30 Hz** on frequency counter reading.

USING ALTERNATE SYSTEM

1. Receive the stereo broadcast.
2. Adjust **VR301** until stereo indicator lights up. Fix the arm of **VR301** as shown in figure.

FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency ..... 0 kHz
Output level ..... 66 dB



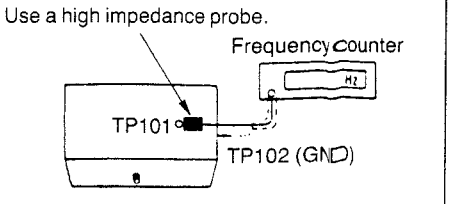


VR301

Ⓐ–Ⓑ, Ⓓ–Ⓔ ..... "Stereo" OFF position
Ⓑ–Ⓓ ..... "Stereo" ON position (indicator lighting)
Ⓒ ..... Adjust point of pilot circuit

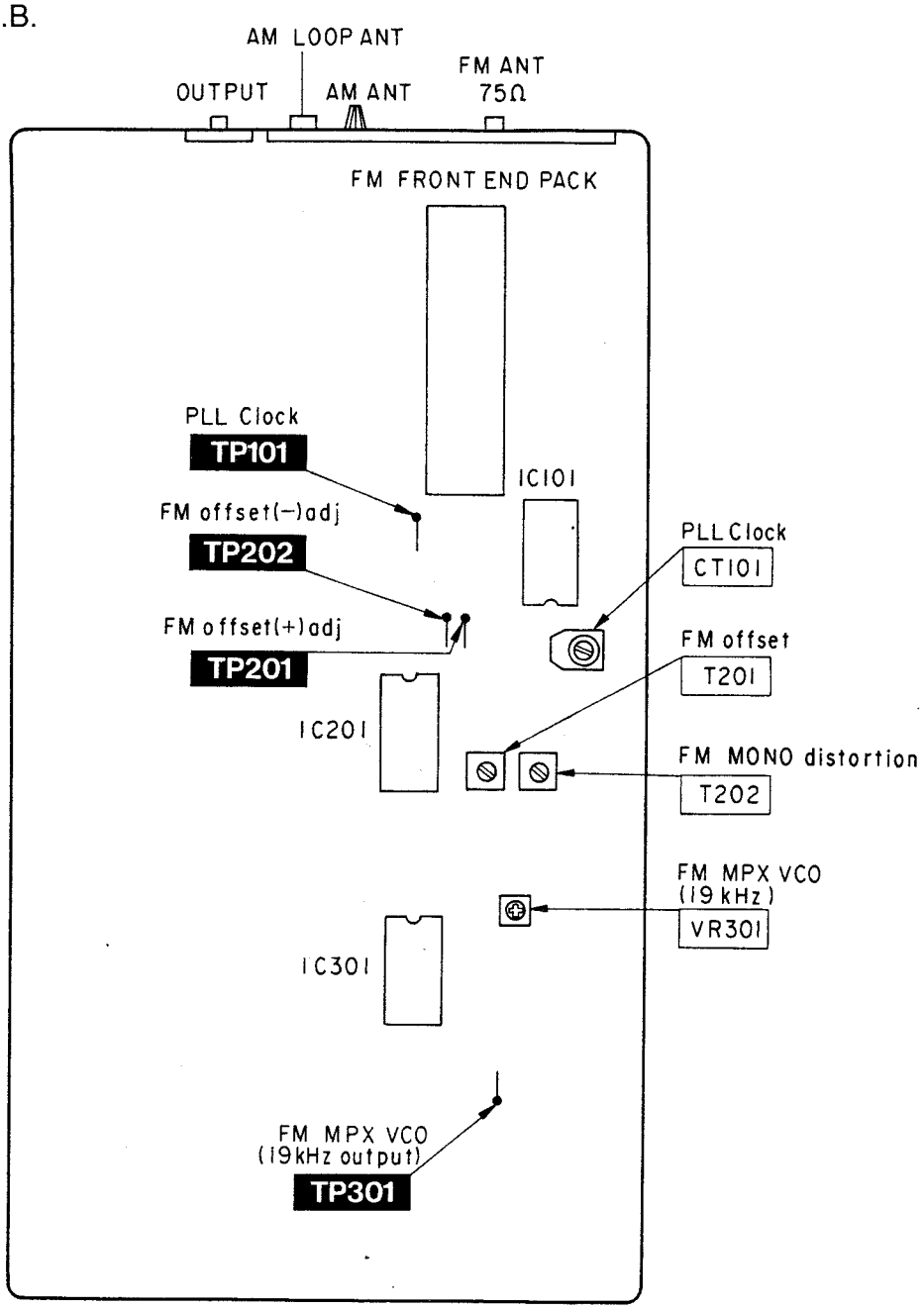
PLL CLOCK FREQUENCY ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the Power Switch to "OFF". (The indication "E" in the display will blink.)
3. Adjust **CT101** for **2,097,152 Hz±10 Hz** on frequency counter reading.

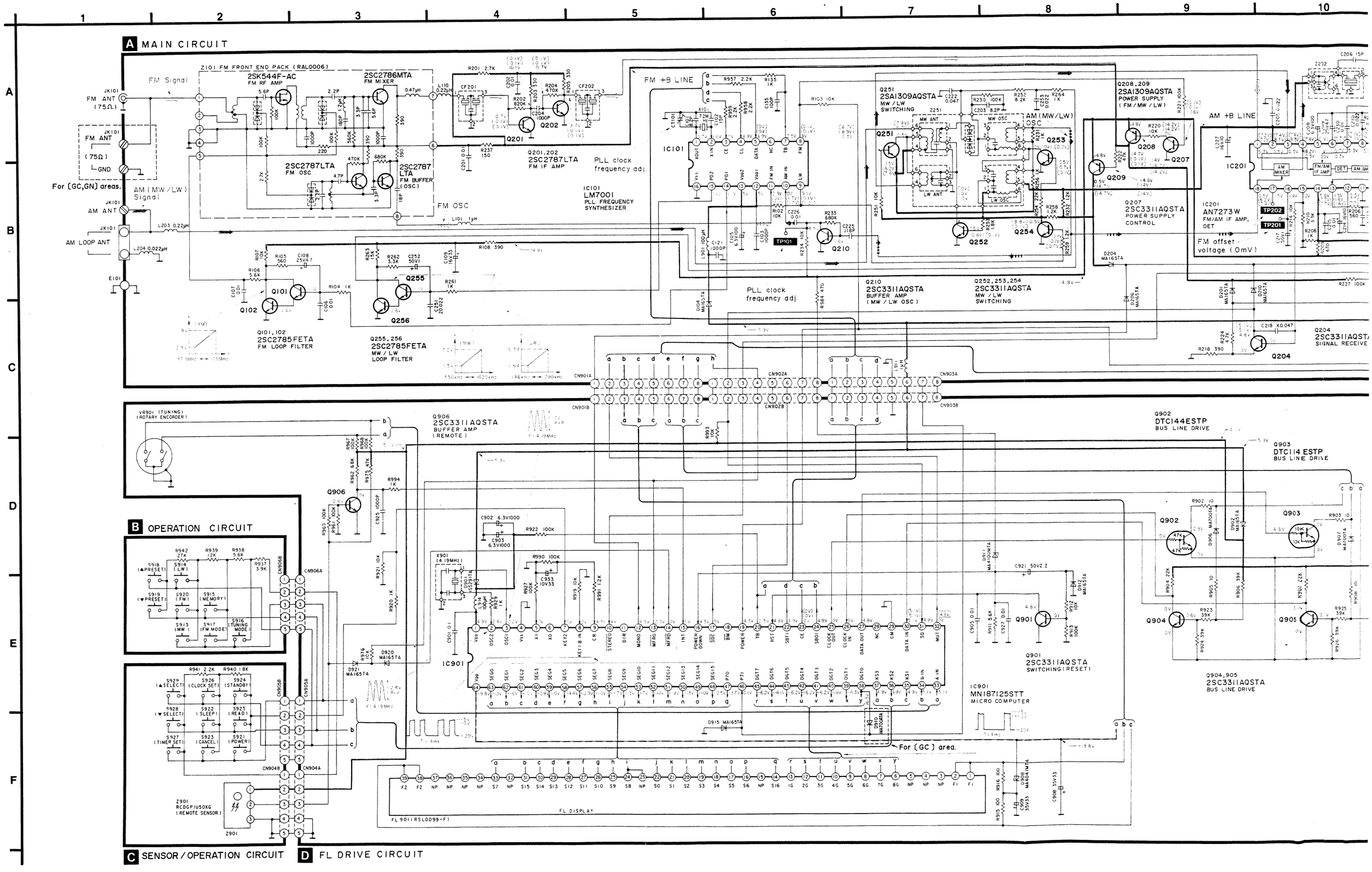


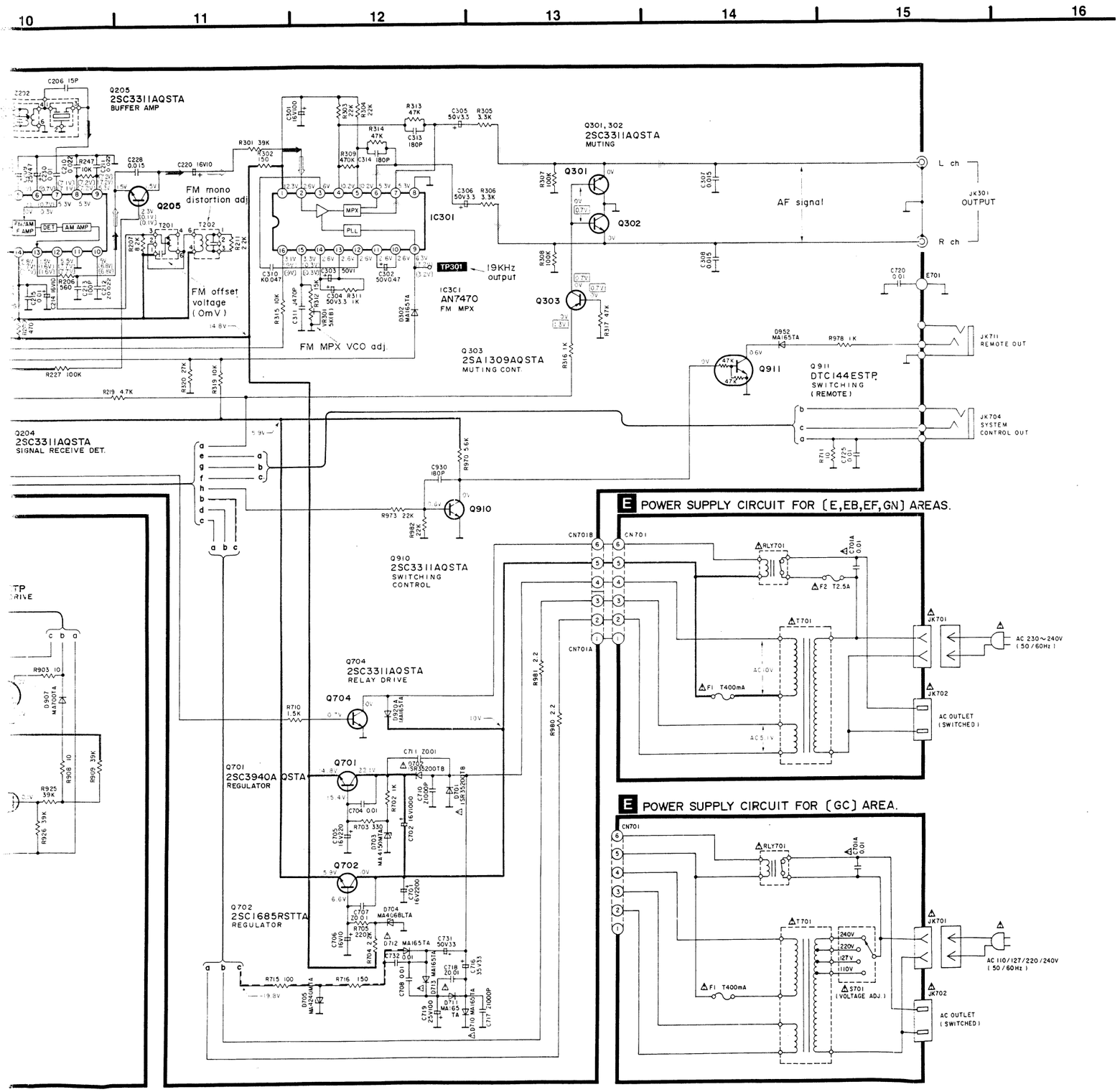
•ADJUSTMENT POINT

MAIN P.C.B.



■ SCHEMATIC DIAGRAM (Parts list on pages 19~22.)


A MAIN CIRCUIT
B OPERATION CIRCUIT
C SENSOR / OPERATION CIRCUIT
D FL DRIVE CIRCUIT
Z101 FM FRONT END PACK (RAL0006)
2SK544F-AC FM RF AMP
2SC2786MTA FM MIXER
2SC2787LTA FM OSC
2SC2787 LTA FM BUFFER (OSC)
Q201 Q201,202 2SC2787LTA FM IF AMP
IC101 LM7001 PLL FREQUENCY SYNTHESIZER
PLL clock frequency adj.
FM +B LINE
AM +B LINE
Q251 2SA1309AQSTA MW / LW SWITCHING
Q253 AM (MW/LW) OSC
Q208,209 2SA1309AQSTA POWER SUPPLY (FM/MW/LW)
Q207 2SC3311AQSTA POWER SUPPLY CONTROL
Q252 Q254
IC201 AN7273W FM/AM IF AMP, DET
FM offset voltage (OmV)
Q210 2SC3311AQSTA BUFFER AMP (MW/LW OSC)
Q252,253,254 2SC3311AQSTA MW / LW SWITCHING
Q101,102 2SC2785FETA FM LOOP FILTER
Q255,256 2SC2785FETA MW / LW LOOP FILTER
Q255 Q256
Q204 2SC3311AQSTA SIGNAL RECEIVE
FM Signal
FM ANT (75Ω)
For (GC,GN) areas.
AM (MW/LW) Signal
AM ANT
AM LOOP ANT
FM OSC
Q906 2SC3311AQSTA BUFFER AMP (REMOTE)
Q902 DTC144ESTP BUS LINE DRIVE
Q903 DTC114 ESTP BUS LINE DRIVE
Q904,905 2SC3311AQSTA BUS LINE DRIVE
Q901 2SC3311AQSTA SWITCHING (RESET)
IC901 MN187125STT MICRO COMPUTER
VR901 (TUNING) (ROTARY ENCORDER)
Z901 RCDGP1U50XG (REMOTE SENSOR)
FL DISPLAY
FL901 (RSL0099-F)
For (GC) area.
CN901A CN902A CN903A CN901B CN902B CN903B
CN906A CN906B CN905A CN905B CN904A CN904B



(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

- **●S701:** Voltage select switch in "240 V" position. (110 V/127 V/220 V/240 V) for (GC) only
- **●S913:** Band select (MW) switch.
- **●S914:** Band select (LW) switch.
- **●S915:** Memory switch.
- **●S916:** Tuning mode select switch.
- **●S917:** FM mode select switch.
- **●S918:** Preset-channel (▲) switch.
- **●S919:** Preset-channel (▼) switch.
- **●S920:** Band select (FM) switch.
- **●S921:** Power switch.
- **●S922:** Sleep switch.
- **●S923:** Cancel switch.
- **●S924:** Stand-by switch.
- **●S925:** Read switch.
- **●S926:** Clock set switch.
- **●S927:** Timer set switch.
- **●S928:** Select (▼) switch.
- **●S929:** Select (▲) switch.

●Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.

●( ): MW voltage [ ]: LW voltage

□: muting voltage

●——— Positive voltage lines (+)

– – – – Negative voltage lines (−)

AF signal lines

▭▭▭▷ **FM OSC**

▬▬▬▷ **AM OSC**

⇨ **FM signal**

➡ **AM signal**

●Important safety notice

Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

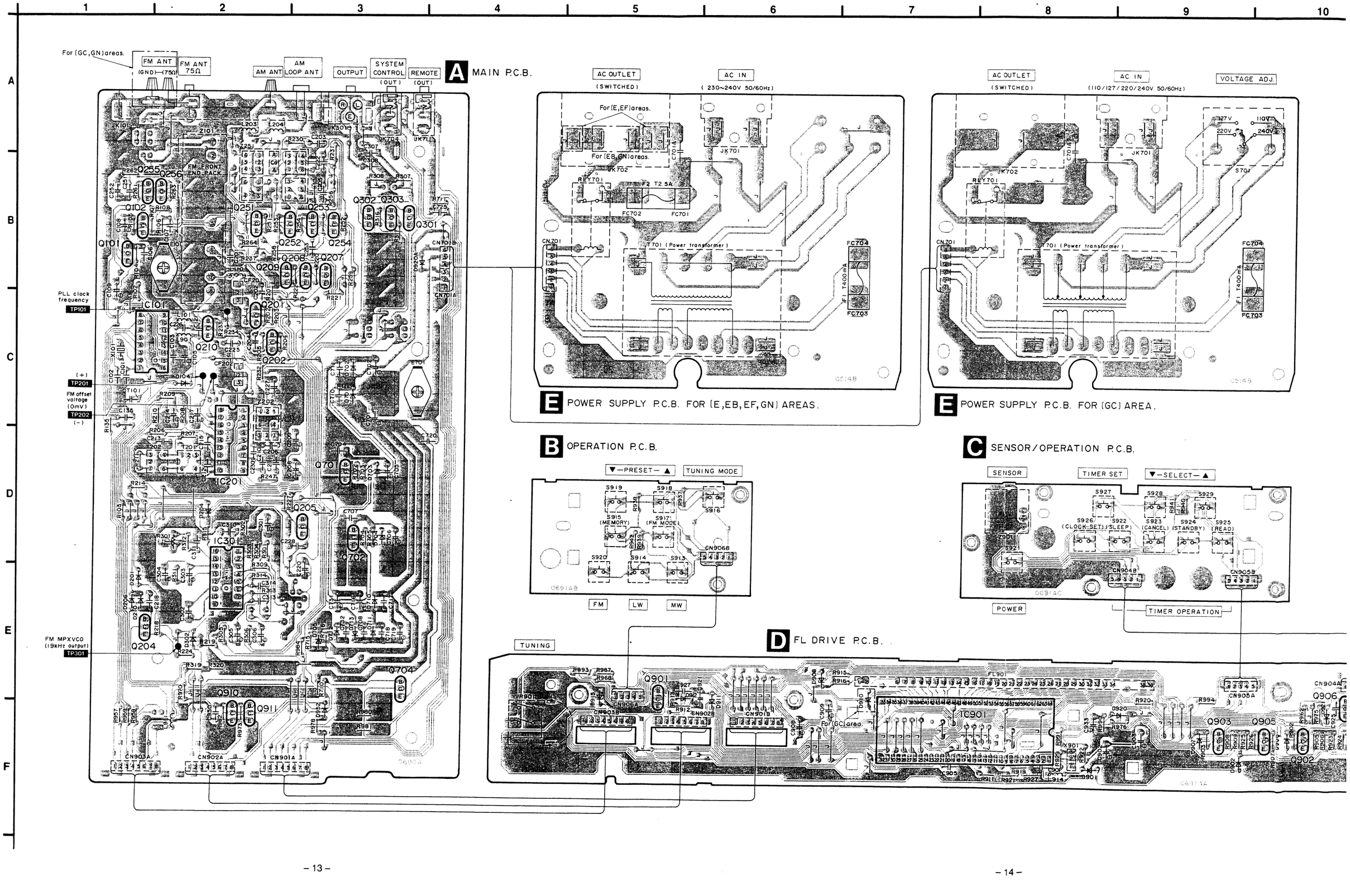
·Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
·Cover the parts boxes made of plastics with aluminum coil.
·Ground the soldering iron.
·Put a conductive mat on the work table.
·Do not touch the legs of IC or LSI with the fingers directly.

●The supply part number is described alone in the replacement parts list.

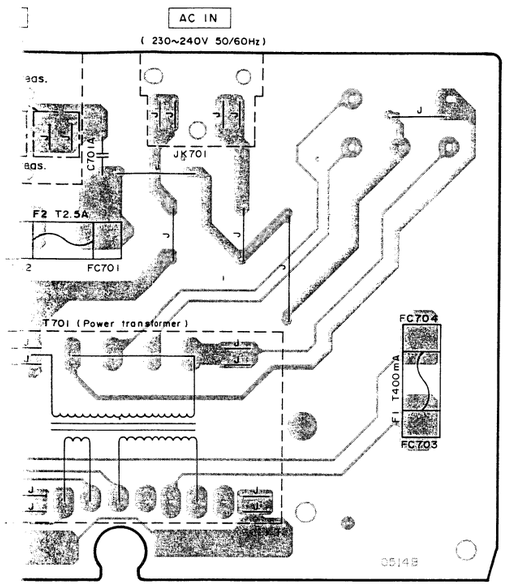
Ref. No.	Production Part No.	Supply Part No.
IC301	AN7470	SVIUPC1161C3

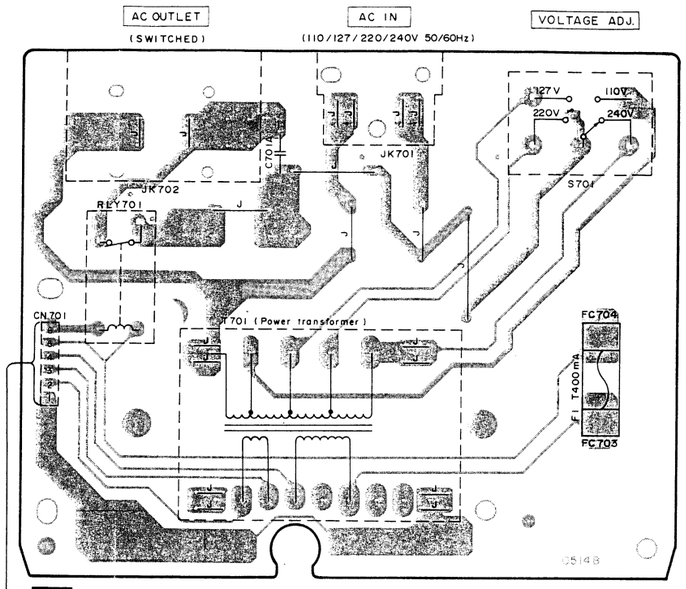
■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM (Parts list on pages 19~22.)



9~22.)

6 7 8 9 10 11 12 13 14

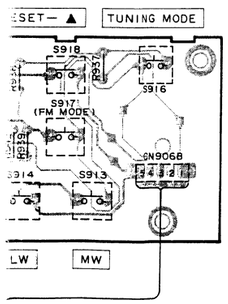




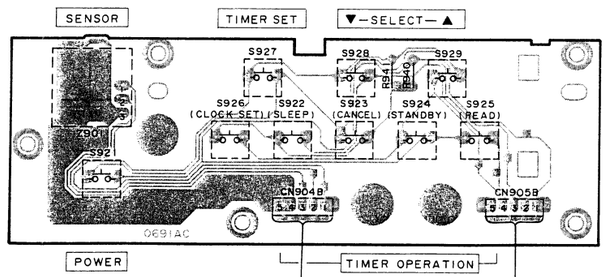
LY P.C.B. FOR (E,EB,EF,GN) AREAS.

E POWER SUPPLY P.C.B. FOR (GC) AREA.

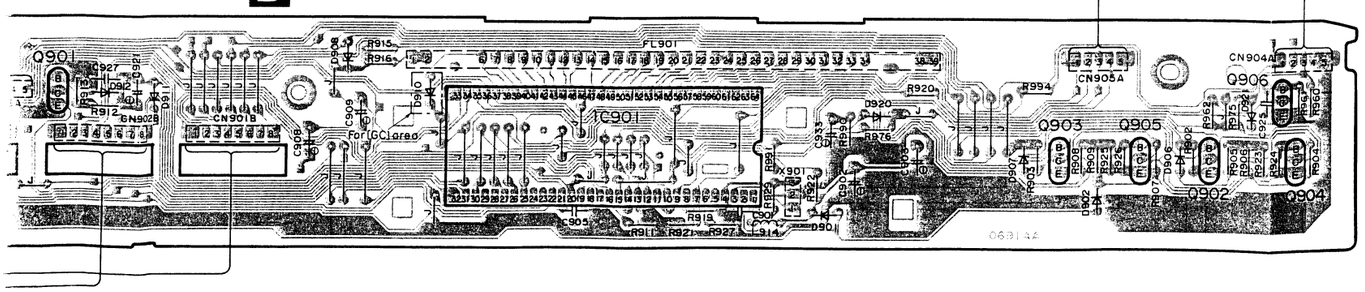
C.B.



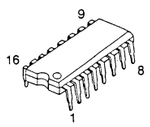
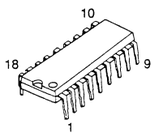
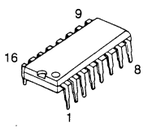
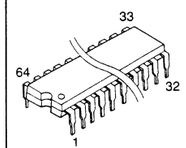
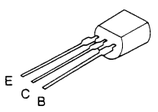
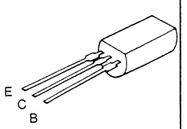
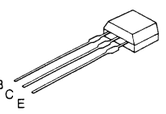
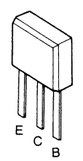
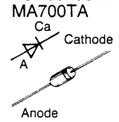
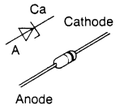
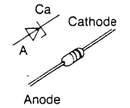
C SENSOR/OPERATION P.C.B.



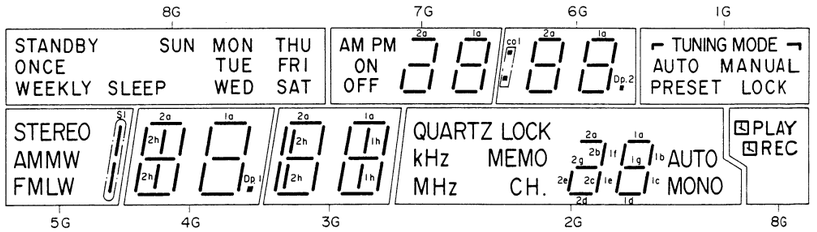
D FL DRIVE P.C.B.



■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

LM7001	AN7470	AN7273W	MN181125STT	2SC1685RSTTA	2SC3940AQSTA
					
DTC114ESTP DTC144ESTP		2SA1309AQSTA 2SC2785FETA 2SC2787LTA 2SC3311AQSTA	MA165TA 1SS291TA 1SR35200TB MA700TA	MA4100MTA MA4150MTA MA4240MTA	MA4068LTA MA4047MTA
					

■ DESCRIPTION OF FL PANEL

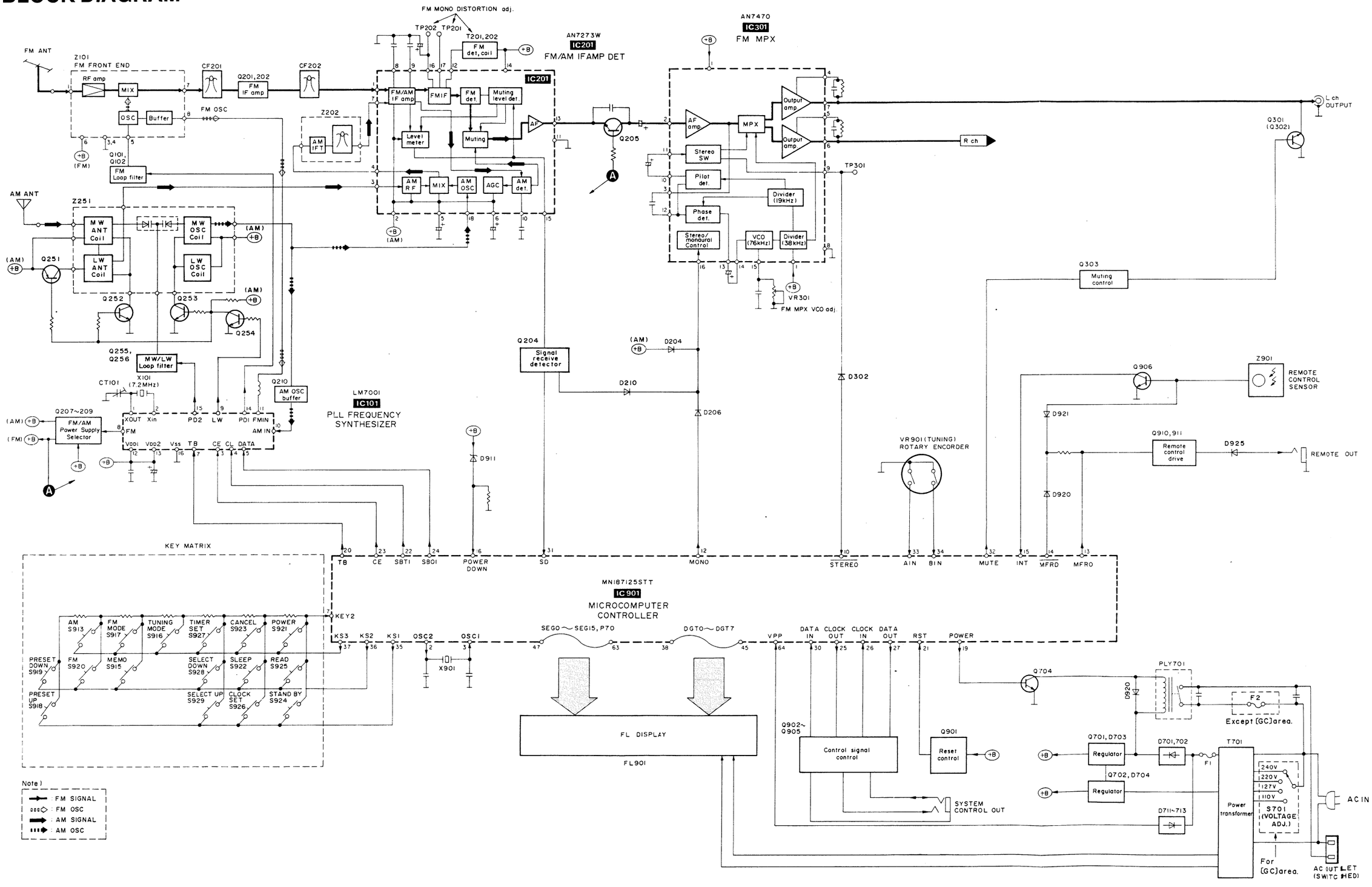


ANODE CONNECTION

	8G	7G	6G	5G	4G	3G	2G	1G
P0	SLEEP	AM	2d	LW	2d	2d	CH.	LOCK
P1	—	PM	2e	FM	2e	2e	MHz	—
P2	WEEKLY	2c	2c	AM	2c	2c	kHz	MANUAL
P3	—	—	2g	MW	2g	2g	2a, 2d, 2e, 2g	—
P4	ONCE	—	2f	—	2f	2f	MEMO	—
P5	—	2b	2b	—	2b	2b	AUTO	AUTO
P6	STANDBY	2a, 2d, 2e, 2g	2a	STEREO	2a	2a	QUARTZ LOCK	PRESET
P7	PLAY	ON	col	S1	2h	2h	2b	TUNING MODE
P8	WED	1d	1d	—	1d	1d	1d	—
P9	SAT	1e	1e	—	1e	1e	1e	—
P10	TUE	1c	1c	—	1c	1c	1c	—
P11	FRI	1g	1g	—	1g	1g	1g	—
P12	MON	1f	1f	—	1f	1f	1f	—
P13	THU	1b	1b	—	1b	1b	1b	—
P14	SUN	1a	1a	—	1a	1a	1a	—
P15	REC	OFF	DP, 2	—	DP, 1	1h	2c	—
P16	—	—	—	—	—	—	MONO	—

ST-X302L

■ BLOCK DIAGRAM



■ FUNCTIONS OF IC TERMINALS (IC901: MN187125STT)

Pin No.	Mark	I/O Division	Function
1	VDD	I	Power supply (connected to +5 V)
2	OSC2	O	Clock (4.19 MHz)
3	OSC1	I	
4	VSS	—	GND
5	XI	I	Clock (32.768 kHz)
6	XO	O	
7	KEY2	I	Key data input terminal
8	KEY1		
9	SD	I	SD signal terminal
10	$\overline{\text{STEREO}}$	I	$\overline{\text{STEREO}}$ signal terminal
11	DIR	O	Tape deck drive signal terminal
12	P22	O	Reset
13	$\overline{\text{MFRO}}$	O	Remote control signal terminal
14	MFRD	I	Remote control signal detect terminal
15	$\overline{\text{REMOTE}}$	I	Remote control signal terminal
16	$\overline{\text{Power Down}}$	I	Power failure detect terminal
17	SDC	O	Tuner select signal output terminal
18	MPD	I	Mechanical power signal input terminal
19	POWER	O	Relay drive signal output terminal
20	TCIO	I	4.19 MHz Test terminal
21	RST	I	Reset terminal
22	SBTI	O	Data output for IC101 (LM7001)
23	CE	O	
24	SBOI	O	
25	BUS CK1	O	Clock output
26	BUS CK2	O	Clock input
27	BUS DATA	O	Data output
28	NC	—	———
29	CM	—	GND
30	BUS DATA2	I	Data input
31	MONO	O	Auto/mono changeover terminal
32	MUTE	O	Mute signal terminal
33	A IN	I	Rotary pulse input terminal
34	B IN		
35	KS1	O	Key matrix
36	KS2		
37	KS3		
38 to 45	DGT0 to DGT7	O	Digital signal terminal for display
46	P71	I	Reset
47	P70	O	Segment signal terminal for display
48 to 63	SEG15 to SEG0		
64	VPP	—	Common signal terminal for display

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
* Remote Control Ass'y:
Supply period for three years from termination of production.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC101	LM7001	I. C, PLL FREQ. SYNTHESIZER	
IC201	AN7273W	I. C, FM/AM IF AMP. DET.	
IC301	SVIUPC1161C3	I. C, FM MPX	
IC901	MN187125STT	I. C, CONTROLLER	
		TRANSISTOR(S)	
Q101, 102	2SC2785FE	TRANSISTOR	
Q201, 202	2SC2787L	TRANSISTOR	
Q204, 205	2SC3311A-Q	TRANSISTOR	
Q207	2SC3311A-Q	TRANSISTOR	
Q208, 209	2SA1309A-R	TRANSISTOR	
Q210	2SC3311A-Q	TRANSISTOR	
Q251	2SA1309A-R	TRANSISTOR	
Q252-254	2SC3311A-Q	TRANSISTOR	
Q255, 256	2SC2785FE	TRANSISTOR	
Q301, 302	2SC3311A-Q	TRANSISTOR	
Q303	2SA1309A-R	TRANSISTOR	
Q701	2SC3940AQSTA	TRANSISTOR	
Q702	2SC1685RSTTA	TRANSISTOR	
Q704	2SC3311A-Q	TRANSISTOR	
Q901	2SC3311A-Q	TRANSISTOR	
Q902	DTC144EKT96	TRANSISTOR	
Q903	DTC114ESTP	TRANSISTOR	
Q904-906	2SC3311A-Q	TRANSISTOR	
Q910	2SC3311A-Q	TRANSISTOR	
Q911	DTC144EKT96	TRANSISTOR	
		DIODE(S)	
D104	MA165	DIODE	
D201	MA165	DIODE	
D204	MA165	DIODE	
D206	MA165	DIODE	
D210	MA165	DIODE	
D302	MA165	DIODE	
D701, 702	1SR35200TB	DIODE	⚠
D703	MA4150M	DIODE	
D704	MA4068L	DIODE	
D705	MA4240H	DIODE	
D710-713	MA165	DIODE	⚠
D901	1SS291TA	DIODE	
D902	MA165	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D906, 907	MA700TA	DIODE	
D908	MA4047MTA	DIODE	
D910	MA700ATA	DIODE	(GC)
D911	MA4100MTA	DIODE	
D912	MA165	DIODE	
D915	MA165	DIODE	
D920	MA165	DIODE	
D920A	MA165	DIODE	
D921	MA165	DIODE	
D952	MA165	DIODE	
		VARIABLE RESISTOR(S)	
VR301	EVNDXAA00B53	V. R, FM MPX VCO ADJ.	
VR901	EVQWQ102224B	V. R, ROTARY ENCORDER	
		COMPONENT COMBINATION(S)	
Z101	RAL0006	COMPONENT COMBINATION	
Z202	RLI2Z003M-T	COMPONENT COMBINATION	
Z251	RLA6Z002M-T	COMPONENT COMBINATION	
Z901	RCD0001-1	REMOTE SENSOR	
		COIL(S)	
L101	ELEXT1R0KA9	COIL	
L110	ELEXTR22MA9	COIL	
L203, 204	ELESNR22MA	COIL	
L901	ELEXT101KA9	COIL	
L911	ELEXT1R0KA9	COIL	
L914	ELEXT101KA9	COIL	
		TRANSFORMER(S)	
T201	RLI4B002M-Z	TRANSFORMER	
T202	RLI4B003M-Z	TRANSFORMER	
T701	RFKCTX302LEK	POWER TRANSFORMER	⚠(E, EB, W)
T701	RFKCTX302LGC	POWER TRANSFORMER	⚠(GC)
		FILTER(S)	
CF201, 202	RLFFETWNA01L	CERAMIC FILTER	
		OSCILLATOR(S)	
X101	SVQ49U722-S	OSCILLATOR	

Ref. No.	Part No.	Part Name & Description	Remarks
X901	EF0GC4194T4	OSCILLATOR	
		DISPLAY	
FL901	RSL0099-F	DISPLAY	
		SWITCH(ES)	
S701	SSR187-1	SW, VOLTAGE SELECTOR	⚠(GC)
S913	EVQ21405R	SW, MW	
S914	EVQ21405R	SW, LW	
S915	EVQ21405R	SW, MEMORY	
S916	EVQ21405R	SW, TUNING MODE	
S917	EVQ21405R	SW, MODE	
S918	EVQ21405R	SW, UP	
S919	EVQ21405R	SW, DOWN	
S920	EVQ21405R	SW, FM	
S921	EVQ21405R	SW, POWER	
S922	EVQ21405R	SW, SLEEP	
S923	EVQ21405R	SW, CANCEL	
S924	EVQ21405R	SW, STANDBY	
S925	EVQ21405R	SW, READ	
S926	EVQ21405R	SW, CLOCK SET	
S927	EVQ21405R	SW, TIMER SET	
S928	EVQ21405R	SW, DOWN	
S929	EVQ21405R	SW, UP	
		CONNECTOR(S)	
CN701	SJT30643-V	CONNECTOR(6P)	
CN701A	RJS1A1703	SOCKET(3P)	
CN901A	RJU003K008M1	SOCKET(8P)	
CN902A	RJU003K008M1	SOCKET(8P)	
CN903A	RJU003K008M1	SOCKET(8P)	
CN904A	SJT30549BB1	CONNECTOR(5P)	
CN905A	SJT30549BB1	CONNECTOR(5P)	
CN906A	SJT30549BB1	CONNECTOR(5P)	
CN701B	RJS1A1703	CONNECTOR(3P)	
CN901B	RJT003K008M1	CONNECTOR(8P)	
CN902B	RJT003K008M1	CONNECTOR(8P)	
CN903B	RJT003K008M1	CONNECTOR(8P)	
CN904B	SJS50581BB	SOCKET(5P)	
CN905B	SJS50581BB	SOCKET(5P)	
CN906B	SJS50581BB	SOCKET(5P)	
		VARIABLE CAPACITOR(S)	
CT101	RCV10AF1T-S	VARIABLE CAPACITOR	
		FUSE HOLDER(S)	
FC701	EYF52BC	FUSE HOLDER	

Ref. No.	Part No.	Part Name & Description	Remarks
FC702	EYF52BC	FUSE HOLDER	
FC703	EYF52BC	FUSE HOLDER	(E, EB, GN)
FC704	EYF52BC	FUSE HOLDER	(E, EB, GN)
		RELAY(S)	
RLY701	RSY0005M-1C	RELAY	⚠
		JACK(S)	
JK101	RJH4202M	ANTENNA TERMINAL	(E, EB)
JK101	RJH4405-1M	ANTENNA TERMINAL	(GC, GN)
JK301	SJF3068-5N	OUTPUT	
JK701	SJS9236	AC INLET	⚠(E, EB, GC)
JK701	SJSD16	AC INLET	⚠(GN)
JK702	RJS1A4902-B	AC OUTLET	⚠(E)
JK702	RJS1A4802-B	AC OUTLET	⚠(EB)
JK702	SJS9331B	AC OUTLET	⚠(GC)
JK702	RJS1A8102	AC OUTLET	⚠(GN)
JK704	RJJ33T01	M3 JACK(SYSTEM CONT. OUT)	
JK711	RJJ33TR01	M3 JACK(REMOTE OUT)	
		FUSE(S)	
F1	XBA2C04TB0	FUSE, 250V 0.4A	⚠
F2	XBA2C25TB0	FUSE, 250V 2.5A	⚠(E, EB, GN)

Notes : * Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

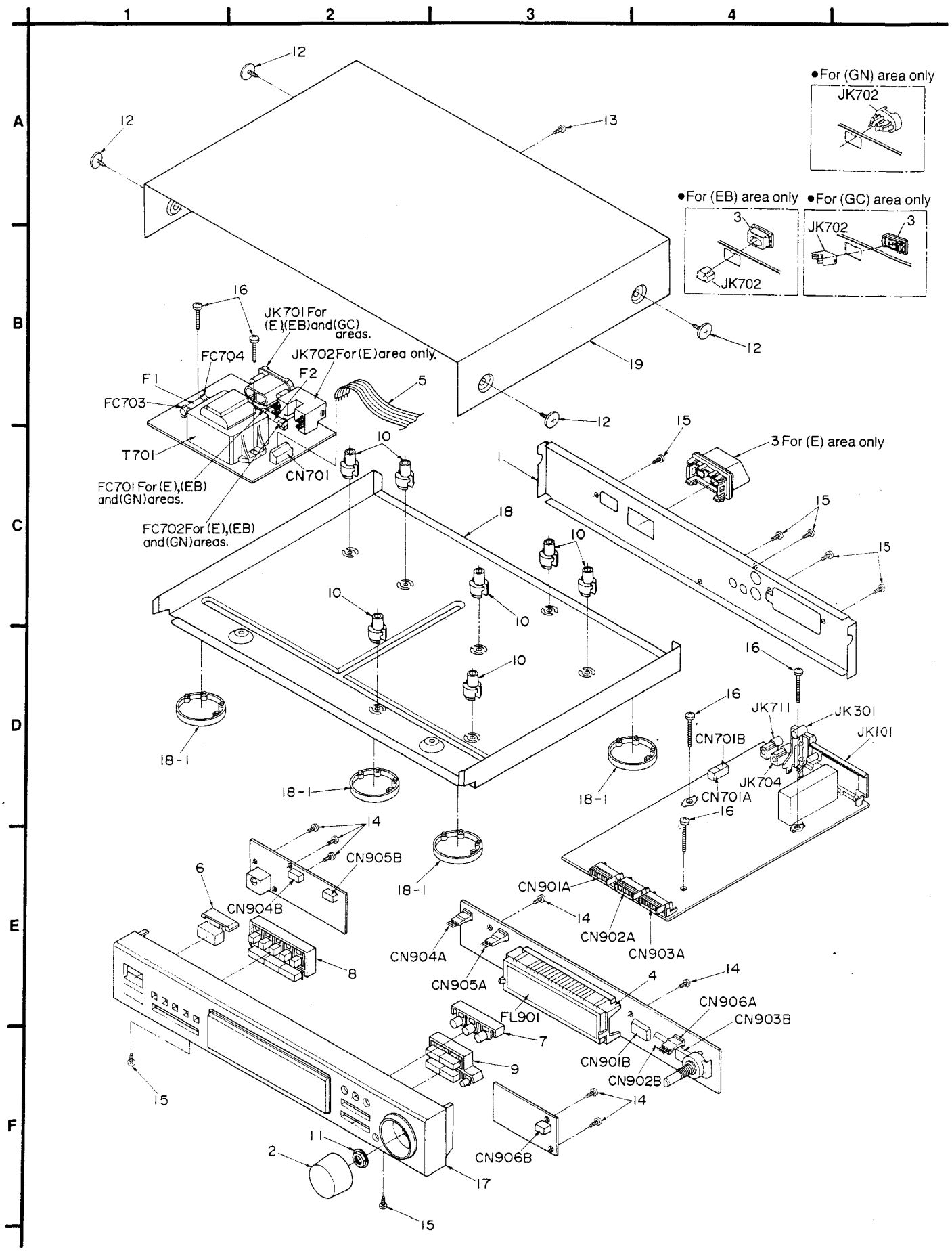
Ref. No.	Part No.	Values & Remarks
		RESISTORS
R102, 103	ERDS2TJ103	1/4W 10K
R104	ERDS2TJ102	1/4W 1K
R105	ERDS2TJ561	1/4W 560
R106	ERDS2TJ562	1/4W 5.6K
R107	ERDS2TJ103	1/4W 10K
R108	ERDS2TJ391	1/4W 390
R135	ERDS2TJ102	1/4W 1K
R201	ERDS2TJ272T	1/4W 2.7K
R202	ERDS2TJ824	1/4W 820K
R203	ERDS2TJ331	1/4W 330
R204	ERDS2TJ474	1/4W 470K
R205	ERDS2TJ331	1/4W 330
R206	ERDS2TJ561	1/4W 560
R207	ERDS2TJ822	1/4W 8.2K
R208	ERDS2TJ102	1/4W 1K
R209	ERDS2TJ471	1/4W 470
R210	ERDS2TJ332	1/4W 3.3K
R211	ERDS2TJ222	1/4W 2.2K
R214	ERDS2TJ103	1/4W 10K
R218	ERDS2TJ391	1/4W 390
R219	ERDS2TJ472	1/4W 4.7K
R220	ERDS2TJ103	1/4W 10K
R221	ERDS2TJ104	1/4W 100K
R222	ERDS2TJ473	1/4W 47K
R224	ERDS2TJ472	1/4W 4.7K
R227	ERDS2TJ104	1/4W 100K
R230	ERDS2TJ104	1/4W 100K
R231	ERDS2TJ102	1/4W 1K
R232	ERDS2TJ122	1/4W 1.2K
R233	ERDS2TJ684	1/4W 680K
R234	ERDS2TJ103	1/4W 10K
R237	ERDS2TJ151	1/4W 150
R247	ERDS2TJ103	1/4W 10K
R251	ERDS2TJ103	1/4W 10K
R252	ERDS2TJ822	1/4W 8.2K
R253	ERDS2TJ182	1/4W 1.8K
R254	ERDS2TJ223	1/4W 22K
R256	ERDS2TJ102	1/4W 1K
R258, 259	ERDS2TJ122	1/4W 1.2K
R261	ERDS2TJ102	1/4W 1K
R262	ERDS2TJ332	1/4W 3.3K
R263	ERDS2TJ153	1/4W 15K
R264	ERDS2TJ102	1/4W 1K
R301	ERDS2TJ393	1/4W 39K
R302	ERDS2TJ151	1/4W 150
R303, 304	ERDS2TJ223	1/4W 22K
R305, 306	ERDS2TJ332	1/4W 3.3K
R307, 308	ERDS2TJ104	1/4W 100K
R309	ERDS2TJ474	1/4W 470K
R311	ERDS2TJ102	1/4W 1K
R312	ERDS2TJ153	1/4W 15K
R313, 314	ERDS2TJ473	1/4W 47K
R315	ERDS2TJ103	1/4W 10K
R316	ERDS2TJ102	1/4W 1K
R317	ERDS2TJ473	1/4W 47K
R319	ERDS2TJ103	1/4W 10K
R320	ERDS2TJ273	1/4W 27K
R702	ERDS2TJ102	1/4W 1K
R703	ERDS2TJ331	1/4W 330
R704	ERDS2TJ222	1/4W 2.2K
R705	ERDS2TJ221	1/4W 220
R710	ERDS2TJ152	1/4W 1.5K
R711	ERDS2TJ100	1/4W 10
R715	ERDS2TJ101	1/4W 100
R716	ERDS2TJ151	1/4W 150
R902, 903	ERDS2TJ100	1/4W 10
R904	ERDS2TJ223	1/4W 22K
R905	ERDS2TJ100	1/4W 10
R906	ERDS2TJ393	1/4W 39K
R907	ERDS2TJ223	1/4W 22K
R908	ERDS2TJ100	1/4W 10
R909	ERDS2TJ393	1/4W 39K
R911	ERDS2TJ562	1/4W 5.6K
R912	ERDS2TJ103	1/4W 10K
R913	ERDS2TJ104	1/4W 100K
R915, 916	ERDS2TJ101	1/4W 100
R919	ERDS2TJ103	1/4W 10K
R920	ERDS2TJ102	1/4W 1K
R921	ERDS2TJ103	1/4W 10K
R922	ERDS2TJ104	1/4W 100K
R923-926	ERDS2TJ393	1/4W 39K
R927	ERDS2TJ104	1/4W 100K
R929	ERDS2TJ102	1/4W 1K
R937	ERDS2TJ392T	1/4W 3.9K
R938	ERDS2TJ562	1/4W 5.6K
R939	ERDS2TJ123	1/4W 12K
R940	ERDS2TJ182	1/4W 1.8K
R941	ERDS2TJ222	1/4W 2.2K
R942	ERDS2TJ273	1/4W 27K
R957-959	ERDS2TJ222	1/4W 2.2K
R960, 961	ERDS2TJ104	1/4W 100K
R962	ERDS2TJ682T	1/4W 6.8K
R967, 968	ERDS2TJ104	1/4W 100K
R970	ERDS2TJ562	1/4W 5.6K
R973	ERDS2TJ223	1/4W 22K
R975	ERDS2TJ473	1/4W 47K
R976	ERDS2TJ103	1/4W 10K
R978	ERDS2TJ102	1/4W 1K
R980, 981	ERDS2TJ2R2T	1/4W 2.2
R982	ERDS2TJ223	1/4W 22K
R984	ERDS2TJ471	1/4W 470
R990	ERDS2TJ104	1/4W 100K
R991	ERDS2TJ122	1/4W 1.2K
R993	ERDS2TJ103	1/4W 10K
R994	ERDS2TJ102	1/4W 1K
		CAPACITORS
C101	ECBT1H8R2KC5	50V 8.2P
C102	ECBT1H150JC5	50V 15P
C103	ECBT1H102KB5	50V 1000P
C105	ECEA0JKA101B	6.3V 100U
C106, 107	ECBT1C103NS5	16V 0.01U
C108	ECEA25M4R7R	25V 4.7U
C109	ECEA1CKA330B	16V 33U
C121	ECBT1H102KB5	50V 1000P
C135	ECBT1H101KB5	50V 100P
C201, 202	ECBT1C103NS5	16V 0.01U
C203	ECBT1H8R2KC5	50V 8.2P
C204	ECBT1H102KB5	50V 1000P
C205	ECKT1H223ZF	50V 0.022U
C206	ECBT1H150JC5	50V 15P
C208	ECEA0JKA101B	6.3V 100U
C209	ECEA1EKA4R7B	25V 4.7U
C210, 211	ECKT1H223ZF	50V 0.022U
C212	ECBT1E223ZF	25V 0.022U
C213	ECBT1H101KB5	50V 100P
C214	ECEA1CKA100B	16V 10U
C215	ECBT1C103NS5	16V 0.01U
C217	ECEA1HKA010B	50V 1U
C218	ECFR1E473KR	25V 0.047U
C220	ECEA1CKA100B	16V 10U
C222	ECFR1E473KR	25V 0.047U
C225	ECBT1H180JC5	50V 18P
C226	ECBT1C103NS5	16V 0.01U
C227	ECEA1CKA100B	16V 10U
C228	ECFR1E153KR	25V 0.015U
C230	ECBT1C103NS5	16V 0.01U
C251	ECBT1E223ZF	25V 0.022U
C252	ECEA1HKA010B	50V 1U
C253	ECBT1E223ZF	25V 0.022U
C301	ECEA1CKA101B	16V 100U
C302	ECEA1HKAR47B	50V 0.47U
C303	ECEA1HKA010B	50V 1U

Ref. No.	Part No.	Values & Remarks
C304-306	ECEA1HKA3R3B	50V 3.3U
C307, 308	ECFR1E153KR	25V 0.015U
C310	ECFR1E473KR	25V 0.047U
C311	ECQP1471JZ	50V 470P
C313, 314	ECBT1H181KB5	50V 180P
C701	ECA1CM222B	16V 2200P
C701A ⚠	ECKWNS103ZVS	500V 0.01U
C702	ECA1CM102B	16V 1000P
C704	ECKR1H103ZF5	50V 0.01U
C705	ECA1CM221B	16V 220P
C706	ECEA1CKA100B	16V 10U
C707, 708	ECKR1H103ZF5	50V 0.01U
C710	ECKR2H102ZF5	500V 1000P
C711	ECKR1H103ZF5	50V 0.01U
C716	ECEA1VKA330B	35V 33U
C717	ECKR2H102ZF5	500V 1000P
C718	ECKR1H103ZF5	50V 0.01U
C719	ECA1EM101B	25V 100U
C720	ECKR1H103ZF5	50V 0.01U
C725	ECKR1H103ZF5	50V 0.01U
C731	ECEA1HKA330Q	50V 33U
C732	ECKR1H103ZF5	50V 0.01U
C901	ECBT1H104ZF5	50V 0.1U
C902, 903	ECEA0JU102	6.3V 1000U
C905	ECBT1C103NS5	16V 0.01U
C908, 909	ECEA1VKA330B	35V 33U
C921	ECEA1HKA2R2B	50V 2.2U
C925	ECBT1H102KB5	50V 1000P
C927	ECBT1C103NS5	16V 0.01U
C930	ECBT1H181KB5	50V 180P
C933	ECEA1AKA330B	10V 33U

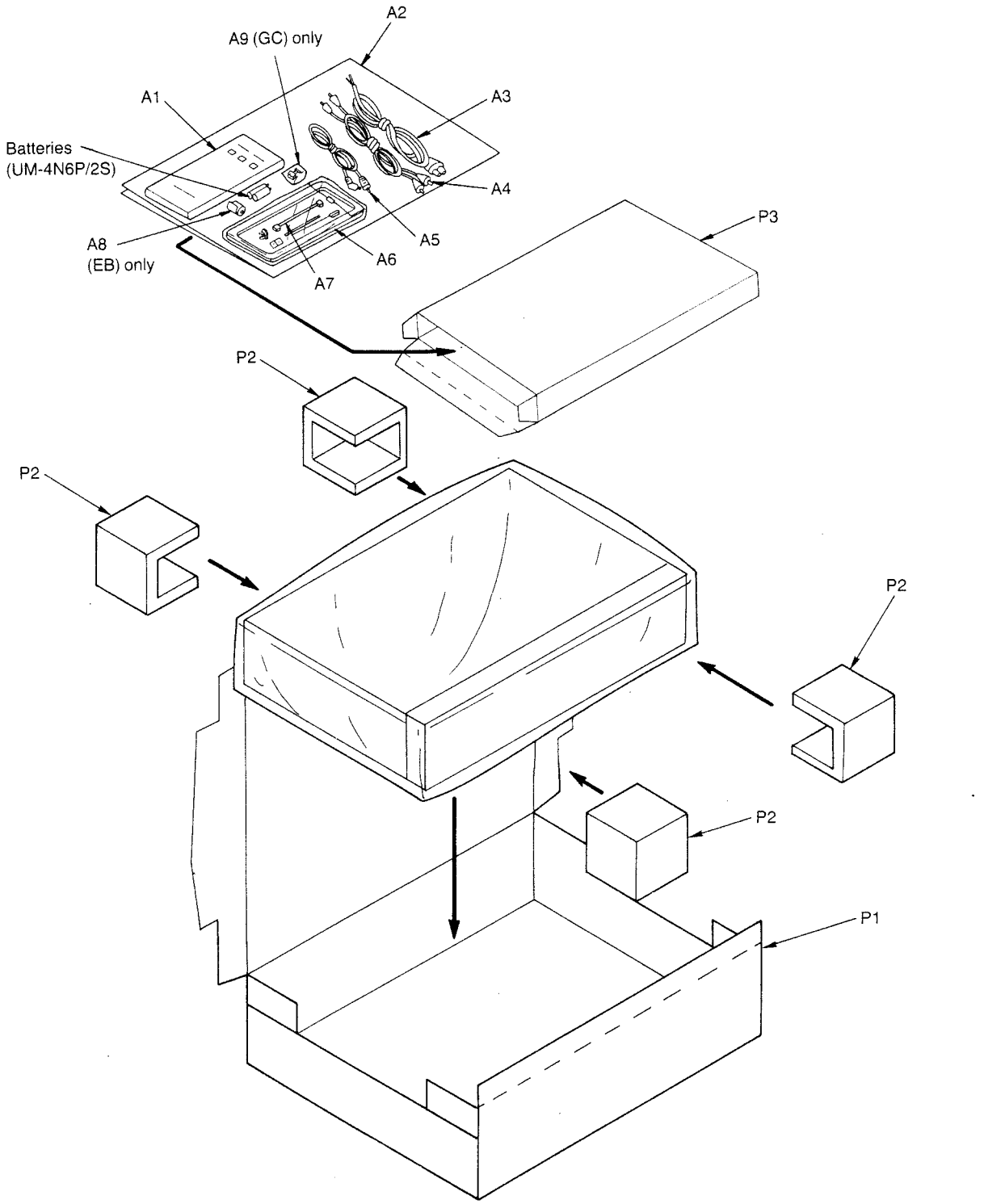
Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RGR0101C-A	REAR PANEL	(EB)
1	RGR0101D-A	REAR PANEL	(GC)
1	RGR0101E-A	REAR PANEL	(GN)
1	RGR0101B-A	REAR PANEL	(E)
2	RGW0118-K	KNOB, TUNING	
3	RJS1A4802-A	AC OUTLET COVER	(EB)
3	SJS9331A	AC OUTLET COVER	(GC)
3	RJS1A4602	AC OUTLET COVER	(GN)
3	RJS1A4902-A	AC OUTLET COVER	(E)
4	RMN0099-1	FL HOLDER	
5	RWJ18061300Q	FLAT CABLE	
6	RGU0453-K	BUTTON	
7	RGU0455-K	BUTTON	
8	RGU0587-K	BUTTON	
9	RGU0588-K	BUTTON	
10	SHE187-2	HOLDER	
11	SNE4021	NUT	
12	RHD30007	SCREW	
13	XTB3+8JFZ	SCREW	
14	XTBS26+8J	SCREW	
15	XTBS3+8JFZ1	SCREW	
16	XTB3+20JFZ	SCREW	
17	RFKGTX302LEK	FRONT PANEL ASS'Y	
18	RFKJTX302LEK	BOTTOM CASE ASS'Y	
18-1	RKA0011-2	FOOT	
19	RKM0055-1K	CABINET	
		PACKING MATERIAL	
P1	RPG0846	PACKING CASE	
P2	RPN0329-1	PAD	
P3	SPSD152	ACCESSORIES BOX	
P4	SPB1061	PROTECTION COVER (MANUAL)	
		ACCESSORIES	
A1	RAK-SC304W	REMOTE CONTROLLER	
A1-1	RKK0020-K	BATTERY COVER	
A2	RQF1005	INSTRUCTIONS MANUAL ASS'Y	(E)
A2	RQF1006	INSTRUCTIONS MANUAL ASS'Y	(EB)
A2	RQF1008	INSTRUCTIONS MANUAL ASS'Y	(GC)
A2	RQF1009	INSTRUCTIONS MANUAL ASS'Y	(GN)
A2-1	RQA0013	WARRANTY CARD	(E, EB)
A2-1	SQX7186	WARRANTY CARD	(GN)
A2-2	RQCB0169	SERVICE CENTER LIST	
A2-3	RQT0922-B	INSTRUCTIONS MANUAL	(EB, GN)
A2-3	RQT0920-G	INSTRUCTIONS MANUAL	(GC)
A2-3	RFKSTX302LEK	INSTRUCTION MANUAL	(E)
A3	SFDAC05E03	AC POWER SUPPLY CORD	⚠(E)

Ref. No.	Part No.	Part Name & Description	Remarks
A3	SJA193	AC POWER SUPPLY CORD	⚠(EB)
A3	RJA0004	AC POWER SUPPLY CORD	⚠(GC)
A3	SJA173	AC POWER SUPPLY CORD	⚠(GN)
A4	SJPK2203-2	STEREO CONNECTION CABLE	
A5	SJP2257T	L-TYPE CABLE	
A6	SPB1162T	AM LOOP ANTENNA	
A6-1	SMA233-1M	HOLDER	
A6-2	SMA231M	HOLDER	
A6-3	XTB3+10AFZ	SCREW	
A7	SSA270M	FM INDOOR ANTENNA	(E, EB)
A7	SSA272M	FM INDOOR ANTENNA	(GC, GN)
A8	SJP9009	ATTACHMENT PLUG	⚠(EB)
A9	SJP9215	AC PLUG ADAPTOR	⚠(GC)

■ CABINET PARTS LOCATION



■ PACKING



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